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Nebraska Earth Systems Education Network – Summer 2002

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NESEN Members to Present at NATS Conference

By Kylee Anderson, NESEN Coordinator

The Nebraska Association of Teachers of Science (NATS) is holding their 42nd annual conference this fall. The conference will be held at Camp Calvin Crest in Fremont from October 24th until the 26th. Many NESEN members will present this year. Thanks to the following people for giving their time and energy to the NATS conference:

Sally Harms of St. Francis High School
Inquiry: Chemistry Activities for Elementary
Terresa Greenleaf of Winnebago Public Schools
Alien Hunt, Rock Animals
Gary Ham and Terresa Greenleaf of Winnebago
Amphibians as Bio Indicators
Lois Mayo of Lincoln Public Schools (with Tiffany Heng-Moss and Lucinda Faunce)
Our Zoo to You: Animals in the Classroom
Laura Tegtmeier of Lincoln's Prescott Elementary with **Barb Kendle** of Alliance Public Schools
Probing Into Pellets
Bart Wormington of Millard Public Schools
On Shore and Off Shore Marine Ecology
Julia Polak of Exeter Public Schools
Down and Dirty Environmental Studies and Elementary Science: Inquire Within
Amy Sander of David City Public Schools (with Kay Griffiths, Ruth Lynne, and Jason Krska)
Chemistry Sharing Session
Dave Gosselin of NESEN at UNL
Nebraska's Geologic History: A Dynamic Record
Mark Mesarch of the School of Natural Resource Sciences at UNL
I Can See Clearly Now…Web Based Visualization
Bernie Crow and **Gerry Swingle** of Arnold Public Schools
Cache in for a GPS Project
Carol Engelmann of Elkhorn Public Schools and **Elaine Westbrook** of Omaha North
Data Analysis of Space Images
Jim Woodland of the Nebraska Department of Education
Elementary and Secondary Presidential, The New Title II and You, and Standards and Assessments
Helen Peyton of Omaha's St. Bernard Elementary
Deep Ocean Currents: A Study in Density and Big Kids Connecting with Little Kids in Science
Gayle Ellison of Lewiston Consolidated Schools
Using Toys and Other Simple Tools
Patricia Dutton of Wolbach Public Schools (with Marie Nielson)
Blending Elementary and Secondary
Ron Bonnstetter of the Teacher's College at UNL (with pre-service teachers)
Inquiry: Helping Students Evolve Into Problem Solvers
Deb Beightol of Fremont Public Schools
Predictive Labs in Physics
Pamela Galus of Omaha Burke (with Sangeeta Gulati)
History and Nature of Science: Science as a Human Endeavor.

Plan now to attend NATS. These and many other workshops will be offered at this year's NATS conference. The deadline for registration is October 1st. More information about the conference and an online registration form can be found by visiting the NATS website at www.unl.edu/stc-95/natshp.htm.

NESEN Website Reviewed and Approved for Classroom Use

By Kylee Anderson, NESEN Coordinator

The NESEN web site was recently reviewed and approved for classroom use by the Board of Reviewing Editors of Science NetLinks. Science NetLinks is part of a partnership called MarcoPolo that provides free, high-quality Internet content for K-12 teachers. As a result of this positive review, the NESEN site is now featured among the recommended resources on the Science NetLinks homepage (http://www.sciencenetlinks.com). This is a comprehensive homepage for science educators created by the American Association for the Advancement of Science.

In order to be approved, the NESEN site was evaluated by the Science NetLinks staff and then sent to an outside reviewer. The set of criteria used to evaluate prospective websites includes the following questions: Are the resources

from a credible source? Is the information accurate? Is the purpose clear? Is it organized? Is the content consistent with current scientific knowledge? Is the site a useful resource for teachers, parents, librarians, and community science educators? According to the reviewer, NESEN's web site met this criteria and "maintains a richly informative web page designed for 'Educators Networking to Improve Earth Science Education."

It also said that "this site will enhance any science teacher's efforts to bring earth science to a varied student audience; all levels of students will be engaged by these activities as interpreted by their teachers." Thanks to everyone who has visited or submitted lessons to the website for helping make nesen.unl.edu such a success.

New Gallery Program at State Museum

By Saundra Wever Frerichs, Education Facilitator at the University of Nebraska State Museum

The University of Nebraska State Museum is pleased to announce a new addition to the gallery programs we offer to school groups visiting the museum. In addition to programs on Dinosaurs, Fossils of Nebraska, Ecology, People of the Buffalo and Wetlands, we now offer an exciting new program on Rocks and Minerals. To celebrate our new program, we dug into our collection and dusted off some beautiful rock and mineral specimens that have not been on display for decades. We have added them, along with awe-inspiring photos by geologist David Loope to our geology exhibit located on the third floor of the museum.

This expanded exhibit makes a perfect backdrop for the inquiry-based program we have designed to encourage 5th-8th graders to explore rocks and how they are formed. In this program, students become "geologists" and use microscopes, hand lenses, careful experimentation and observation to investigate the formation of rock. To make a reservation or get fee information for any of the museum's programs, send your request to elephant@unl.edu or call (402) 472-6302.

Earth Science Notes

By Duane Mohlman, Conservation and Survey Division

The Conservation and Survey Division (CSD) has published a new series of informative flyers called *Earth Science Notes*. These colorful fact sheets, generally 4-6 pages in length, are offered for free as single copies. Additional copies are $2.00 each. *Earth Science Notes* are also available in pdf format from the CSD web site at *http://csd.unl.edu/csd/misc/esn.htm*. The following four topics are available:

ESN-1 *Nebraska's Test-hole Drilling Program and Records* (March 2001)
ESN-2 *Environmental Change and the Central Great Plains, Past Present and Future* (April 2001)
ESN-3 *Environmental Change and the Central Great Plains, Water Resources* (April 2001)
ESN-4 *Environmental Change and the Central Great Plains, Carbon Sequestration* (August 2001)

New Maps

By Duane Mohlman, Conservation and Survey Division

The Geographic Face of the Nation: A Map of the Nation's Land Cover - $7.00

Compiled in cooperation with the Environmental Protection Agency, this vividly colored map portrays a seamless National Land Cover Datasat using 1992 Landsat Thematic Mapper imagery and supplemental data for the conterminous United States. The printed map depicts 21 different land cover categories at a spatial resolution of 30 meters and represents a mosaic of 48 individual state databases. The map, produced in 2002, is roughly 54" x 32" with a scale of 1:4,000,000. For more information about this map, please go to http://csd.unl.edu/esic/materials.html and go to the map's title under "United States Maps."

Presidential Elections 1789-2000 - $7.00

This map should be of interest to every American and is a must for students of American history. This new presidential elections map details election results from 1789 to 2000, and each is a unique story. Fifty-four election results are depicted on this map, prepared by the US Geological Survey as part of the National Atlas of the US. The map shows the electoral votes by political party and state for all of the presidential elections from George Washington to George W. Bush in. In addition to the small electoral map, the 2000 election is illustrated with a larger, more detailed map that shows the winner of the popular vote at the county level. The map, produced in 2001, is roughly 42" x 30" with a scale of 1:11,000,000. More information can be obtained at the web site listed above
To order any of these publications or maps, please contact the Conservation and Survey Division, Map and Publication Sales Office, voice 402-472-7523, fax 402-472-4542, or email csdsales@unl.edu.

CSD and Water Center Calendar

By Charles Flowerday, Conservation and Survey Division

With water, or its lack, very much on everyone's mind this year, the two units at the University of Nebraska-Lincoln most devoted to water research are releasing a calendar for 2003 that features a historical photo essay celebrating water use, development and conservation in Nebraska. The Conservation and Survey Division (CSD) (the state geological, water and soil survey) and the Water Center (once part of CSD and responsible for facilitating, coordinating and administering funds for water research in the state) have put together a free wall calendar that features monthly photos of water-related scenes from the state's distant and more recent past.

Spearheaded by Michael Jess, Water Center acting director and CSD associate director, the project was inspired both by a similar effort by the U.S. Bureau of Reclamation for 2000-2001 and by a successful poster calendar issued by CSD for 2002. "We didn't anticipate water being such a timely topic with this year's drought, but it is interesting that within UNL, these two organizations, along with Biological Systems Engineering, probably have had the most to do with the development of irrigation in the state," Jess added.

The calendar should be ready by mid- to late October, he said. Those interested should write CSD, University of Nebraska-Lincoln, at 113 Nebraska Hall, Lincoln, NE, 68588-0517; or by phone: (402) 472-7523; or email: csdsales@unl.edu. The Water Center will distribute it also.

New Field Guide Explores the History and Geology of Harlan County Dam

By Karen Stork, Communications Associate, Natural Resources Business Center

Sixty-seven years ago this past spring, a massive wall of water devastated farms, buildings and homes and killed 94 people in southwestern Nebraska. In late May 1935, and again in early June, torrential rains caused the Republican River to flood and inundate all or parts of Nebraska towns such as Parks, Benkelman, Stratton, Trenton, Culbertson, McCook, Edison and Naponee and more than 57,000 acres of farmland in the state.

After that catastrophic flood, the U.S. Army Corps of Engineers designed and built the Harlan County Dam and Lake on the Republican River. In addition to preventing floods, the dam has also supplied irrigation and recreation. The completion of the Harlan County Dam 50 years ago provides the occasion for a new publication from the University of Nebraska-Lincoln's Conservation and Survey Division (CSD) that celebrates the geology of the area.

"We wanted to do an anniversary publication that would document the history of the dam. Since it was built, there have been no large floods in the area," Diffendal explains. "The lake also provides outstanding recreational opportunities for the citizens of Nebraska."

The multi-author publication, called "Field Guide to the Geology of the Harlan County Lake Area, Harlan County, Nebraska - With a History of Events Leading to Construction of Harlan County Dam," is of general and scientific interest. The 61-page report also includes sections on the area's geology, water resources and fossils, as well as structural features such as landslides, jointing, faulting and folding. Eyewitness accounts of the 1935 floods are also provided.

The publication is currently in press, and the price has not been set. However, it should be ready by late September. Orders may be placed by contacting the Conservation and Survey Division, University of Nebraska-Lincoln, at 113 Nebraska Hall, Lincoln, NE, 68588-0517; or by phone: (402) 472-7523; or email: csdsales@unl.edu.

NU Report on Nitrogen Management in Northern Holt County Available

By Karen Stork, Communications Associate, Natural Resources Business Center

Following University of Nebraska nitrogen fertilizer recommendations produced a net economic return from nitrogen applied to irrigated corn that was comparable or better than that from both higher and lower application rates, according to a new University of Nebraska report. This assessment from northern Holt County is based on the profitability of nitrogen applied relative to yields produced at an average price for corn of $2.31 a bushel over the last decade, said Charles Shapiro, a soil scientist at the NU Northeast Research and Extension Center co-writing the report.

The report, "Agricultural Management Practices and the Groundwater System of Northern Holt County, Nebraska," focuses on the Holt County Groundwater Education Project. This inter-agency effort began in 1994 to alert area farmers about the movement into groundwater of nitrates coming from fertilizer applications, particularly with irrigation. Generally, the report said, three factors make groundwater in the areas susceptible to nitrate contamination: increase in irrigated row crops; the physical properties of the soil; and the shallow depth to groundwater. According to the report,

area producers have made some progress improving water quality. However, they have yet to fully implement the complete NU-recommended procedures, the authors said.

"At the top of the aquifer, we are seeing a downward trend in nitrates. When you sample farther down or mix the levels, you don't see it yet, but it is beginning to change," said Susan Olafsen Lackey, associate geoscientist with UNL's Conservation and Survey Division and senior author of the report. The other project leader was William Kranz, irrigation specialist at the Northeast Research and Extension Center.

The publication is available free from the Conservation and Survey Division, 113 Nebraska Hall, University of Nebraska-Lincoln; by phone: (402) 472-7523; or email: csdsales@unl.edu. It is also distributed free from NU Cooperative Extension Publications, Box 830918, University of Nebraska, Lincoln, NE 68583-0918; or by calling (402) 472-9713. Orders can be placed at local extension offices.

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